

On Kuratsubo phenomenon

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It is well known as the Gibbs-Wilbraham phenomenon that, for the Fourier series of piecewise continuous functions, in the neighborhood of each jump, the partial sums overshoot the jump by approx 9% of the jump.

In 1993, Pinsky, Stanton and Trapa [4] showed that, for the Fourier series of the indicator function of a d -dimensional ball with $d \geq 3$, the spherical partial sum diverges at the center of the ball. This phenomenon is called the Pinsky phenomenon.

In 2006 Kuratsubo, Nakai and Ootsubo [2] suggested the third phenomenon by graphs when $d = 5, 6$. This third phenomenon proved by Kuratsubo [1] in 2010. That is, he proved that, for the Fourier series of the indicator function of a d -dimensional ball with $d \geq 5$, the spherical partial sum diverges at all rational points.

In this talk we give some graphs of Kuratsubo phenomenon and recent study.

This is a joint work with Professors Shigehiko Kuratsubo and Eiichi Nakai.

References

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